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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/587,248

07/26/2006

Matthias Maase

13156-00067-US1

8379

30678

7590

03/17/2009

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EXAMINER

HAVLIN, ROBERT H

ART UNIT

PAPER NUMBER

1626

MAIL DATE

DELIVERY MODE

03/17/2009

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

### Office Action Summary

**Application No.**

10/587,248

**Applicant(s)**

MAASE ET AL.

**Examiner**

ROBERT HAVLIN

**Art Unit**

1626

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 26 January 2009.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) 1-8, 10, 11 and 13-20 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 9 and 12 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/S5108)  
Paper No(s)/Mail Date 7/26/06
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

### DETAILED ACTION

**Status of the claims:** Claims 1-20 are currently pending.

**Priority:** This application is a 371 of PCT/EP05/00752 (01/26/2005) and claims foreign priority to GERMANY 10 2004 003 958.5 (01/26/2004).

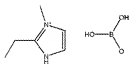
**IDS:** The IDS dated 7/26/06 was considered.

### *Election/Restrictions*

1. Applicant's election with traverse of Group I (claims 9-12) in the reply filed on 1/16/09 and 1/26/09 is acknowledged. The traversal is on the ground(s) that that the technical feature linking the claims is novel over the prior art. This is not found persuasive because as described below in the rejections, the technical feature is not novel.

The requirement is still deemed proper and is therefore made FINAL.

Applicant also elected the following species (ethylmethylimidazolium dihydrogenborate):



As is detailed below, the generic claim was not found patentable, therefore the provisional election of species is in effect and the claims are restricted to the elected species only and the remaining subject matter held withdrawn. Claims 10 and 11 not reading on the elected species are hereby withdrawn.

### *Claim Rejections - 35 USC § 102*

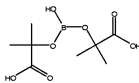
1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 9 and 12 are rejected under 35 U.S.C. 102(b) as being anticipated by Xu, Wu and Angell, Austen, "Novel Orthoborate Ionic Liquids," Dept. of Chem., Arizona State University, Presented at 202nd Meeting of the Electrochemical Society, October 20-25, 2002, Salt Lake City, Utah ("Wu").

Wu teaches the ionic liquid of 1-butyl-3-methyl-imidazolium bis(2-hydroxyisobutyrate)borate or  $[BMI]^+ [BHiBB]^-$ .



BHiBB has the structure of: bis(2-hydroxyisobutyrate)borate .

### ***Claim Rejections - 35 USC § 112***

3. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

4. Claims 9 and 12 are rejected under 35 U.S.C. 112, first paragraph, because the specification does not reasonably provide enablement for the entire scope of the claimed ionic liquids both with respect to the anions and cations. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to use the invention commensurate in scope with these claims.

The test of enablement is whether one skilled in the art could make and use the claimed invention from the disclosures in the specification coupled with information known in the art without undue experimentation (*United States v. Teletronics*, 8 USPQ2d 1217 (Fed. Cir. 1988)). Whether undue experimentation is needed is not

based upon a single factor but rather is a conclusion reached by weighing many factors. These factors were outlined in *Ex parte Forman*, 230 USPQ 546 (Bd. Pat. App. & Int. 1986) and again in *In re Wands*, 8 USPQ2d 1400 (Fed. Cir. 1988) and include the following:

*Nature of Invention.* The nature of the invention involves ionic liquids comprised of structurally diverse anion and cation molecules.

*Scope of the Invention.* The scope of the invention in the claims includes phosphonium and ammonium cations (having no additional structural limitations) and boron derivative anions having innumerable substitutions.

*State of the Art and Level of Skill in the Art.* Although the level of skill in the art is very high, the successful synthesis of an ionic liquid is highly uncertain and is not a prior predictable given larger variations in structure of the anions or cations.

*Number of Working Examples and Guidance Provided by Applicant.* The only working examples that were indicated as ionic liquid within the scope of the invention was the elected species on page 21 and that of the bottom of page 19.

*Unpredictability of the Art and Amount of Experimentation.* The art of creating new ionic liquids is highly unpredictable. The skilled artisan could not predict *a priori* whether a new combination of an anion and a cation would result in an ionic liquid. Furthermore, there would be a huge amount of experimentation required in order to arrive at a viable ionic liquid combination of an anion and a cation as well as a protocol to successfully combine them before the skilled artisan could practice the entire scope of the invention.

Considering the above factors, and the tremendous amount of variability in the structures of the components of the ionic liquid, the claims are not enabled for the entire scope of the invention.

### ***Conclusion***

The claims are not in condition for allowance.

### ***Correspondence***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Robert Havlin whose telephone number is (571) 272-9066. The examiner can normally be reached on Mon. - Fri., 7:30am-5pm EST.

If attempts to reach the examiner by telephone are unsuccessful the examiner's supervisor, Joe McKane can be reached at (571) 272-0699. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Robert Havlin/  
Examiner, Art Unit 1626

/Rebecca L Anderson/  
Primary Examiner, Art Unit 1626